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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/052,466	01/23/2002	Ming-Kwei Lee	70434-0024	6427

7590 01/27/2004

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EXAMINER
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OWENS, DOUGLAS W

ART UNIT	PAPER NUMBER
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2811

DATE MAILED: 01/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/052,466

Applicant(s)

LEE, MING-KWEI

Examiner

Douglas W Owens

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 4, 6 and 7 is/are rejected.
- 7) ☒ Claim(s) 2, 3 and 5 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of the invention of group I, claims 1 – 7 in Paper No. 10302003 is acknowledged.

### ***Specification***

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### ***Claim Objections***

3. Claims 1 – 7 are objected to because of the following informalities:  
in line 9 of claim 1, "cooperates" should be replaced with "cooperate";  
in line 9 of claim 1, "thereamong" should be deleted.
4. Claim 1 recites the limitations "...the other one of said first side edges...", "...the other one of said first corners..." and "...the other one of said second corners..." in lines 18 – 19. There is insufficient antecedent basis for these limitations in the claim.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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6. Claims 1, 4, 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over US published patent application No. 2002/0047128 to Song et al. in view of admitted prior art.

7. Regarding claim 1, Song et al teaches a semiconductor diode (Figs. 6b, 7 and 8, for example), comprising:

- a semiconductor die including a substrate (31);

- a first n-type semiconductor film (33) on the substrate;

- a second p-type semiconductor film (35) on the first semiconductor film;

- a first contact (38) on the first semiconductor film;

- a second metal contact (37) on the second semiconductor film;

- the semiconductor die having two opposing first side edges and two opposing second side edges, defining two first corners diagonally opposed to two second corners;

- the first semiconductor film having an exposed area that is exposed from the second semiconductor film adjacent to one of the first side edges and extends between one of the first and second corners;

- the first contact (38; portion 48) having a first strip portion that is formed on the exposed area and a first bonding portion, where the bonding portion is taken to be the area that the metal contact is bonded to the semiconductor film (similar to the admitted prior art and claimed invention), that extends from and has a greater width than the first strip portion and a length less than that of the first strip portion;

- the second metal contact having a second strip portion adjacent a first side edge that extends between a second first corner and a second second corner; and

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a second bonding portion that extends from and has a width greater than that of the second strip portion and a length less than that of the second strip portion.

Song et al. does not teach that the first contact (38) is metal. Admitted prior art teaches a metal first contact (72). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the metal used for the contact of the admitted prior art into the contact taught by Song et al. since it is desirable to use reliable materials for the contact.

Regarding claim 4, Song et al. teaches a diode, further comprising an Ohmic metal contacting film (36) sandwiched between the second semiconductor film and second metal contact.

Regarding claim 6, Song et al. teaches a diode, wherein the substrate is sapphire.

Regarding claim 7, Song et al. teaches a diode, wherein the n-type material is n-doped GaN, and the p-type material is p-doped GaN.

8. Claims 2, 3 and 5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

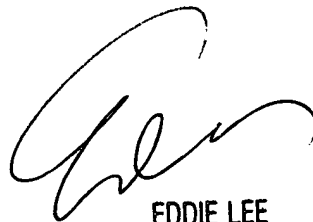
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas W Owens whose telephone number is 703-308-6167. The examiner can normally be reached on Monday-Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C Lee can be reached on 703-308-1690. The fax phone number for the organization where this application or proceeding is assigned is 703-308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

DWO

A handwritten signature in black ink, appearing to read 'Eddie Lee', is positioned above the printed name.

EDDIE LEE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800